



July 6, 2006

Ram Verma
Senior Mechanical Engineer
California Energy Commission
1516 Ninth Street, MS 25
Sacramento, CA 95814

Re: 2008 Building Energy Efficiency Standards

Rebuttal to Pacific Building Consultants Study

Dear Ram:

In considering the letter regarding cool roof costs for the state of California from Pacific Building Consultants, Inc., I must express my educated belief that the use of this information by the Energy Commission would be ill advised. In my opinion, the cost assumptions made by this "study" do not properly reflect actual roofing conditions on a majority of low slope roofs in California.

In particular, this study does not identify the contractors that were polled for the price information, whether union or non-union contractor, built up or single ply contractor. Differences in price between the various types of contractor can be very significant in all systems. These differences are most noteworthy in small jobs such as this hypothetical project.

Aside from the style of contractor, the hypothetical job conditions do not reflect real world conditions found on a majority of jobs in the state of California and can be very misleading to the unknowledgeable person reading this report. Here are a few noted errors:

- The hypothetical roof specifically excludes walls or parapets but does call for the installation of drains and overflows in the roof. Rarely are drains installed without the presence of a wall or parapet. The addition of walls or parapets to the roofing system can have a profound effect to the cost of built up systems.
- The cost of insulation is ignored in both systems, but does have a significant cost effect in a roofing system and should have been included. The vast majority of new and re-roofed commercial roofs are constructed with insulation board directly over the roof deck, under the membrane. Often, on re-roofing, the building must reflect the new requirements for

- increased thermal resistance under Title 24. Various types of thermal insulation used for this purpose can have a major impact upon cost.
- For thermoplastic single ply membranes, no distinction was made between PVC, TPO or CSPE, yet these membranes have significant price differences that may not be reflected in the square foot price listed.
 - Thermal barriers required to meet a UL class B rating for single ply membranes were not identified. Several options exist that can vary the cost of the thermal barrier by as much as 50%.
 - The inclusion of EPDM membranes in the average pricing for single ply is somewhat misleading since the use of this product in California after the enactment of Title 24 has greatly diminished.

I recommend that the Energy Commission not use the cost guidelines as submitted until clarification of the study is made and that the public record show the inaccuracies noted.

Sincerely,
DON LAMBRECHT & ASSOCIATES, inc.

A

Don Lambrecht, CSI, RCI
Manufacturers' Representative
Roof System Consultant
.